

Docket No. F-9186

Ser. No. 10/588,668

AMENDMENTS TO THE CLAIMS:

Please replace the claims with the claims provided in the listing below wherein status, amendments, additions and cancellations are indicated.

1. (Currently amended) A laminated solar battery, comprising:
different types of solar cell modules each having a respectively different sensitivity wavelength band and each configured generally in a form of a layer, said solar cell modules being incorporated as an integrally laminated structure in which the solar cell modules are consecutively layered from an indicated side of said structure for receiving sunlight in an order according to shortness of a center wavelength of each solar cell module, wherein a solar cell module having the shortest center wavelength is located closest to said indicated side; in the laminated structure, with a one said layer overlaying another said layer of respective ones of said solar cell modules in a direction of lamination, from a one of said solar modules having a shortest center wavelength of the sensitivity wavelength band to another of the solar modules having a longest center wavelength of the sensitivity wavelength band such that said one of said modules having the shortest center wavelength in said sensitivity wavelength band is positionable closest to an incidental side of said laminated structure which is adapted to being exposed to sunlight,

Docket No. F-9186

Ser. No. 10/588,668

wherein at least one of said different types of said solar cell modules comprising comprises a cell group module including a plurality of nearly spherical solar cells aligned in plural rows and plural columns and rows as at least one array of said solar cells which extends which are extending crosswise to said a direction of lamination; lamination of said solar cell modules;

wherein said solar cells in each of said columns and rows of said cell group module comprises a serial/parallel connection circuit for being electrically connected connecting said plural nearly spherical solar cells in each row or column in parallel via a pair of lead wires and for electrically connecting said plural nearly spherical solar cells in each column or row in series; [[and]]

wherein at least one type of said different types of said solar cell modules is comprised of a planar light receiving module having a planar common pn junction; and

wherein a serial connection circuit which electrically connects said solar cell modules in series, said different types of solar cell modules being configured such that designed maximum output currents of said solar cell modules are approximately equal to one another.

2. (Canceled)

Docket No. F-9186

Ser. No. 10/588,668

3. (Previously presented) The laminated solar battery according to claim 1, wherein:

said solar cell modules include four types of said solar cell modules,

three types of said four types of said solar cell modules are comprised of cell group modules each of which includes nearly spherical solar cells aligned in columns and rows, and

a remaining one type of said four types of said solar cell modules is comprised of a planar light receiving module having a planar common pn junction.

4. (Currently Amended) The laminated solar battery according to claim ~~four-2; 1~~ wherein said solar cells aligned in said columns and said rows in said cell group module are electrically connected via lead wires extending in a columnar direction or a row direction and led to an outside.

5-6. (Cancelled)

7. (Previously presented) The laminated solar battery according to claim 1, wherein:

Docket No. F-9186

Ser. No. 10/588,668

each said cell group module includes two layers of said nearly spherical solar cells aligned in columns and rows on respective planes running crosswise to the lamination direction, and

 said nearly spherical solar cells are arranged in said two layers so as not to overlap when viewed in the direction of lamination.

8. (Currently Amended) The laminated solar battery according to claim [[2.]] 1, further comprising a reflective member capable of reflecting the sunlight in a lower part or downside of said planar light receiving module, said at least one planar light receiving module being arranged in a lowest layer to be located downside of said cell group module.

9. (Previously presented) The laminated solar battery according to claim 7, wherein any of said solar cell modules except for said one of said solar cell modules at the incidental side of said laminated structure which is adapted to being exposed to sunlight is provided, on a surface thereof, with a mirror film that reflects a light of sensitivity wavelength bands which can be easily absorbed by ones of the solar cell modules above said any of said solar cell modules.

Docket No. F-9186

Ser. No. 10/588,668

10. (Previously presented) The laminated solar battery according to claim 7, wherein said solar cells are received in a buried state inside transparent glass or synthetic resin material, in said cell group modules.

11. (Previously presented) The laminated solar battery according to claim 7, further comprising a transparent member made of transparent glass or synthetic resin material which is fixed at a top of said solar cell module on said one of said solar cell modules at the incidental side of said laminated structure which is adapted to being exposed to sunlight.

12. (Previously presented) The laminated solar battery according to claim 3, wherein:

 said planar light receiving module is arranged in a lowest position below said multiple cell group module, and said three types of solar cell modules include first to third cell group modules thereof laminated sequentially from said incidental side of sunlight,

 said first cell group module includes first solar cells each of which has a nearly spherical pn junction on a surface resin of a nearly spherical GaP single crystal,

o

Docket No. F-9186

Ser. No. 10/588,668

said second cell group module includes second solar cells each of which has a nearly spherical pn junction on a surface resin of a nearly spherical GaAs single crystal, and

said third cell group module includes third solar cells each of which has a nearly spherical pn junction on a surface resin of nearly spherical Si single crystal.

13. (Previously presented) The laminated solar battery according to claim 12, wherein said planar light receiving module includes a planar common pn junction formed in an InGaAs semiconductor layer which is formed on an n-type InP semiconductor substrate.

14. (Previously presented) The laminated solar battery according to claim 3, wherein:

said planar light receiving module is arranged in a top layer above said three types of solar cell modules, and said three types of solar cell modules include first to third cell group modules thereof laminated sequentially from said incidental side of sunlight.

said first cell group module includes first solar cells each of which has a nearly spherical pn junction on a surface resin of a nearly spherical GaAs single crystal.

Docket No. F-9186

Ser. No. 10/588,668

said second cell group module includes second solar cells each of which has a nearly spherical pn junction on the surface resin of a nearly spherical Si single crystal, and

said third cell group module includes third solar cells each of which has a nearly spherical pn junction on the surface resin of a nearly spherical Ge single crystal.

15. (Previously presented) The laminated solar battery according to claim 14, wherein said planar light receiving module includes a planar common pn junction formed in a GaAsP semi-conductor layer which is formed on an n-type GaP semiconductor substrate.

16. (Currently amended) The laminated solar battery according to claim 12, wherein:

said at least one planar light receiving module includes two types of planar light receiving modules, and
one or more cell group modules are incorporated between said two types of planar light receiving modules.

Docket No. F-9186

Ser. No. 10/588,668

17. (Previously presented) The laminated solar battery according to claim 1, wherein:

 said different types of solar cell modules are each formed in a general shape of a cylinder, and

 said solar cell modules are laminated in a general shape of a concentric cylinder.

18. (Withdrawn) A laminated solar battery, comprising:

 solar cell modules having a respectively different sensitivity wavelength band, said solar cell modules being respectively configured as discrete layers each having a widened expanse running crosswise to a thickness direction, said solar cell modules being incorporated as an integrally laminated structure in which the solar cell modules are layered so as to overlay one another in said thickness direction, a layering of said solar cell modules in said laminated structure being consecutively ordered in said laminated structure from a one of said solar modules having a shortest center wavelength of the sensitivity wavelength band to another of the solar modules having a longest center wavelength of the sensitivity wavelength band, said one of said modules having the shortest center wavelength in said sensitivity wavelength band being positioned closest to an incidental side of said laminated structure which is adapted to being exposed to sunlight, at least one of said solar

Docket No. F-9186

Ser. No. 10/588,668

cell modules being comprised of a cell group module including nearly spherical solar cells aligned in columns and rows extending along said widened expanse as at least one array of said solar cells; and

a serial connection circuit which electrically connects said solar cell modules, said solar cell modules being configured such that an output current of each of said solar modules is approximately equal to one another.

19. (Withdrawn) The laminated solar battery according to claim 18, wherein said widened expanse of the solar cell modules are aligned generally as concentric cylinders.

20. (Withdrawn) The laminated solar battery according to claim 18, wherein said widened expanse of the solar cell modules are aligned generally with respective planes.

J.J

10186-0007-000415.pd